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15095 EPOXIDATION  
249 EPOXIDATIONS  
15129 EPOXIDATION  
(EPOXIDATION OR EPOXIDATIONS)  
26769 EPOXIDN  
582 EPOXIDNS  
26860 EPOXIDN  
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28634 EPOXIDATION  
(EPOXIDATION OR EPOXIDN)  
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(EPOXIDATION OR EPOXIDN)  
794610 CATALYST  
791247 CATALYSTS  
1016631 CATALYST  
(CATALYST OR CATALYSTS)  
L2 10056 EPOXIDATION AND CATALYST

=> s l2 and "Ti-MWW"  
369298 "TI"  
1300 "TIS"  
370270 "TI"  
("TI" OR "TIS")  
217 "MWW"  
1 "MWWS"  
218 "MWW"  
("MWW" OR "MWWS")  
40 "TI-MWW"  
("TI" (W) "MWW")  
L3 28 L2 AND "TI-MWW"

=> s l3 and precursor  
275300 PRECURSOR  
129461 PRECURSORS  
363027 PRECURSOR  
(PRECURSOR OR PRECURSORS)

L4 7 L3 AND PRECURSOR

=> s l4 and hydrothermal  
75773 HYDROTHERMAL  
5 HYDROTHERMALS  
75776 HYDROTHERMAL  
(HYDROTHERMAL OR HYDROTHERMALS)

L5 4 L4 AND HYDROTHERMAL

=> d 15 1-4 abs ibib

L5 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2008 ACS on STN

AB Ti-MWW was prepared by acid treatment and calcination on a lamellar precursor which was synthesized under dynamic hydrothermal crystallization conditions using piperidine as a template, and boric acid as a structure-supporting agent. The crystallization time is shortened by adding Ti-MWW seeds and increasing stirring rate. UV-visible spectra show that the precursor contains tetrahedral and octahedral Ti species. Calcination of the precursor results in a partial condensation of the octahedral Ti to form the anatase phase. The octahedral Ti species belong to a kind of extra framework Ti, which can be removed easily by the acid treatment in a short time. The calcined Ti-MWW contains the anatase when the acid-treated time is too long. The characteristic IR band at 960 cm<sup>-1</sup> is not observed for the Ti-MWW precursor, but it appears in the samples treated by acid. Epoxidn. of allyl alc. with H<sub>2</sub>O<sub>2</sub> on Ti-MWW was studied. Ti-MWW with Si/Ti ratio of 20 and acid treatment for 12 .apprx. 16 h is more effective. The conversation of allyl alc. is 88.7%, and the selectivity for glycidol is 99% under the reaction conditions of 333 K and 30 min, but the catalytic activity of Ti-MWW decreases when the acid-treated time is too long.

ACCESSION NUMBER: 2006:397985 CAPLUS

DOCUMENT NUMBER: 146:69422  
TITLE: Epoxidation of allyl alcohol to glycidol on  
AUTHOR(S): Ti-MWW molecular sieves  
Chen, Xiaohui; Fan, Zhiyong; Quan, Xia; Wei, Kemei  
CORPORATE SOURCE: National Engineering Research Center of Chemical  
Fertilizer Catalyst, College of Chemistry and Chemical  
Engineering, Fuzhou University, Fuzhou, 350002, Peop.  
Rep. China  
SOURCE: Cuihua Xuebao (2006), 27(3), 285-290  
CODEN: THHPD3; ISSN: 0253-9837  
PUBLISHER: Kexue Chubanshe  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese

L5 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2008 ACS on STN  
AB A novel post-synthesis method has been proposed to prepare a highly efficient titanosilicate catalyst with the MWW topol., Ti-MWW. The so-called reversible structural conversion method is based on a structural interchange between 3-dimensional MWW silicate and its lamellar precursor together a simultaneous incorporation of titanium through the treatment with an aqueous solution of titanium source and cyclic amine. This method overcomes the restriction problem between pore windows and titanium precursor probably encountered in the usual method using TiCl<sub>4</sub> vapor at elevated temps. The catalytic properties of postsynthesized Ti-MWW have been investigated by comparing with hydrothermally synthesized one as well as the conventional titanosilicates of TS-1 and Ti-Beta in the epoxidn. of various alkenes with hydrogen peroxide. Ti-MWW proves to be more effective in the epoxidn. of both simple and functionalized alkenes. Particularly, the novel postsynthesis method of a reversible structural conversion incorporates more active Ti species into the framework than the conventional hydrothermal synthesis, leading to the most active epoxidn. titanosilicate catalyst so far. Ti-MWW has been further delaminated into thin sheet material which possesses an extremely open and accessible surface area but maintains the basic structure of zeolite. Delaminated Ti-MWW catalyzes the epoxidn. of bulky substrates of various cycloalkenes more actively than other titanosilicates including mesoporous Ti-MCM-41.

ACCESSION NUMBER: 2005:418382 CAPLUS  
DOCUMENT NUMBER: 144:150676  
TITLE: MWW-type titanosilicate: novel preparation and high efficiency in the epoxidation of various alkenes  
AUTHOR(S): Wu, P.; Fan, W.; Nuntasri, D.; Tatsumi, T.  
CORPORATE SOURCE: Graduate School of Engineering, Yokohama National University, Hodogayaku, Yokohama, 2408501, Japan  
SOURCE: Studies in Surface Science and Catalysis (2004), 154C(Recent Advances in the Science and Technology of Zeolites and Related Materials), 2581-2588  
CODEN: SSCTDM; ISSN: 0167-2991  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2008 ACS on STN  
AB MWW type titanosilicate, Ti-MWW, has been synthesized by the dry-gel conversion (DGC) method, and its physicochem. properties and catalytic performance in the liquid-phase epoxidn. of alkene have been compared with that of hydrothermally synthesized (HTS)

Ti-MWW. The roles in the crystallization of silica source, alkali cation, cyclic amine as a structure-directing agent (SDA), and boric acid structure-supporting agent have been investigated. The crystallization

of Ti-MWW did not occur for the dry gels free of boric acid, but was feasible at a Si/B molar ratio as high as 12 in marked contrast to the ratio of 0.75 required in the hydrothermal synthesis. The sodium as a mineralization agent was not necessary and on the contrary inhibited the crystallization particularly at a high content. The seeding technique using deboronated MWW effectively accelerated the crystallization speed and reduced the amount of boric acid required.

As-synthesized

Ti-MWW-DGC lamellar precursors contained both tetrahedral and octahedral species but the latter was selectively removed by acid treatment. Ti-MWW-DGC catalysts showed lower intrinsic activity than Ti-MWW-HTS in the epoxidn. of hex-1-ene with hydrogen peroxide probably because the crystal size of the former was 10-20 times as large as that of the latter and then imposed significant diffusion problems for both the substrates and the products.

ACCESSION NUMBER: 2005:224837 CAPLUS  
DOCUMENT NUMBER: 142:323629  
TITLE: Synthesis of Ti-MWW by a dry-gel conversion method  
AUTHOR(S): Wu, Peng; Miyaji, Takayuki; Liu, Yueming; He, Minyuan; Tatsumi, Takashi  
CORPORATE SOURCE: Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East China Normal University, Shanghai, 200062, Peop. Rep. China  
SOURCE: Catalysis Today (2005), 99(1-2), 233-240  
CODEN: CATTEA; ISSN: 0920-5861  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2008 ACS on STN

AB A novel titanosilicate with the MWW topol., Ti-MWW, has been prepared by direct hydrothermal synthesis using boric acid as a structure-supporting agent, and also by post-incorporation of tetrahedral Ti species into MWW silicalite through controlled structural conversions between three-dimensional crystalline silicalite and the lamellar precursor. Ti-MWW is further converted by delamination into a thin sheet material applicable to the reaction of bulky reactants. Both direct hydrothermal synthesis and postsynthesis methods make it possible to introduce a controllable amount of Ti species into the MWW structure. An acid treatment of uncalcined samples is essentially important for the removal of the extraframework octahedral Ti species located on the exterior layer surface. The catalytic properties of Ti-MWW have been compared with those of conventional titanosilicates (TS-1, TS-2, Ti-Beta, Ti-MOR, Ti-MCM-41, etc.) in the epoxidn. of various alkenes with hydrogen peroxide. Hydrothermally synthesized Ti-MWW proves to be more effective in the epoxidn. of linear alkenes including functionalized ones, and also exhibits considerable activity for cycloalkenes. Moreover, it shows a unique shape selectivity not shared with other titanosilicates in the epoxidn. of cis/trans geometric alkene isomers. Postsynthesized Ti-MWW, nearly free of boron, catalyzes the alkene epoxidn. more effectively as a result of the tetrahedral Ti species different from those

resulting from the direct synthesis, which turns out to be the most active epoxidn. titanosilicate catalyst so far. Delaminated Ti-MWW, possessing an extremely open and accessible surface area but maintaining the basic structure of zeolite, catalyzes the epoxidn. of various cycloalkenes more actively than large pore titanosilicates including mesoporous Ti-MCM-41.

ACCESSION NUMBER: 2004:378219 CAPLUS  
DOCUMENT NUMBER: 141:213439  
TITLE: A New Generation of Titanosilicate Catalyst:  
Preparation and Application to Liquid-Phase  
Epoxidation of Alkenes  
AUTHOR(S): Wu, Peng; Tatsumi, Takashi  
CORPORATE SOURCE: Department of Chemistry, Shanghai Key Laboratory of  
Green Chemistry and Chemical Processes, East China  
Normal University, Shanghai, 200062, Peop. Rep. China  
SOURCE: Catalysis Surveys from Asia (2004), 8(2), 137-148  
CODEN: CSAABF; ISSN: 1571-1013  
PUBLISHER: Kluwer Academic/Plenum Publishers  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
REFERENCE COUNT: 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS  
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